

Comments of Virginia Chesapeake Bay TMDL
Watershed Implementation Plan Phase I
September 2010 Draft

Statement of Opinion

A “Ground Level” Point of View
From the Shenandoah Valley

Narrowly Focused Shortsighted Clean Waterway Public Policy
Or
All-Inclusive Environmental Health Public Policy

Submitted by Ed Craun

As currently proposed this is a plan that mandates a reduction of nutrients (nitrogen and phosphorus) and sediment from all the uses of the watersheds of the Shenandoah Valley. All of the uses and benefits of our entire natural resources within this valley will be subordinate to the objective of reducing nutrients and sediment for the benefit of the waterways.

This plan is structured to redefine the traditional priority of uses and benefits of our natural resources. Nutrient and sediment reduction is considered the highest priority regardless of unintended consequences to our environmental health, environmental safety, and food security.

Summary of Scientific Reliability of Recommendations

Agricultural BMPs based on the “best available science” need to be sufficiently field tested to assure the reliability of the results.

Existing and future expansion of nutrient waste from fresh water aquaculture (sources not assessed by WLA) should be a component of the existing analysis and allocation of nutrients.

This plan needs to resolve conflicts of the recommendations to convert pasture land to forest with existing research that shows pasture land is the vegetative cover with the highest source of organic matter, a key factor in erosion control.

A cost benefit analysis of the recommended agricultural BMPs should be completed before implementation.

This plan needs to provide for the development of agricultural BMPs that reduce nutrient loss and preserve farm land. The plan relies on an excessive amount of agricultural land retirement to achieve nutrient reduction objectives.

Summary of Farm Land Preservation and Farm Economic Viability

Farm land preservation will be significantly impaired by planned financial incentives to retire farm land and unrestrained nutrient trading programs funded by urban developers.

Unlimited conversion of farm land to wildlife habitat would threaten economic sustainability of the agribusiness infrastructure of this region.

The recommended standards for prescribed grazing need to ensure that livestock producers can maintain economic viability.

This plan needs to provide adequate funding of agricultural BMPs.

Summary of Shenandoah Valley Environmental Impact

Wildfire risk assessment specific to the Shenandoah Valley should be completed due to the unrestricted conversion of farm land to wildlife habitat.

The recommendation to significantly increase wildlife habitat would result in an increase of the reservoir of infection of wildlife diseases within the Shenandoah Valley. This would result in an impairment of environmental health to the residents of this area.

The incidence of Lyme disease, a wildlife related disease, has increased 1500% in Virginia during a 13 year period.

The enhancement of our environmental health, safety and food security should be included as a priority of the uses of our natural resources.

Protecting the environmental health, environmental safety and food security of our communities should be a priority of this WIP plan. The preservation of the domestic livestock/grassland ecosystem is the first step in reducing the health risks and safety impairments of the wildlife/forest ecosystem.

Review of Draft Virginia TMDL Watershed Implementation Plan

Unlimited Reduction of Farm Land

Implementation of a variety of Best Management Practices (BMPs) will convert a significant amount of existing farm land to forest land and wildlife habitat. The following is a partial list of farm land conversion to nonfarm uses:

- 1) Retirement of 5% of Agricultural Land (e.g. Conservation Reserve Programs)
- 2) Conversion of 5% of highly erodible agricultural land to forest
- 3) Conversion of farm land to establish riparian forest buffers
- 4) Conversion of farm land to establish riparian grass buffers
- 5) Retirement of farm land attributed to the nutrient trading program

Additional loss of farm land is anticipated due to land being purchased for urban development. Unrestrained conversion of farm land to nonfarm use may be accelerated due to the proposed nutrient trading program.

This plan states that a 35' grass or forest buffer will be implemented on 95% of the waterways in crop and hay lands. Livestock will be excluded from 95% of the perennial waterways. There is no cap or limit of the total amount of farm land that would be converted to nonfarm use. The total amount of farm land conversion to wildlife habitat is unlimited. Financial incentives of nutrient trading may influence landowners to retire an excessive amount of farm land that would result in an impairment of domestic food security. Additional farm land reduction is expected from farms lost to urban development.

No stated Accuracy or Reliability of Ag BMPs

At this time the effectiveness of the agricultural BMPs is based on limited research. The calculations of the nutrient and sediment reduction efficiencies are based on current best scientific estimates. Due to the limited number of field studies, the accuracy or reliability of these agricultural BMPs is not available.

Cattlemen today have research data available that enables them to select a bull with an accuracy of 5% up to 98% for a single trait. A young bull, with limited progeny and limited measured data, usually have the lowest accuracy and are the highest risk.

The agricultural BMPs may be based on the “best available science” but they need to be sufficiently tested in the field to determine with at least 75% accuracy that the practices will achieve stated results. I would question the use of public funds to implement practices that only have a 50-50 chance of success.

I have confidence that our research and academic communities are capable of determining the reliability of the agricultural BMPs if funds are provided to accomplish such an objective. Adequate field testing of the Ag BMPs is needed to insure that the reduction of nutrients and the reduction of sediment are positively correlated. If research reveals that certain practices have a negative correlation then implementation of these certain practices may not be advisable.

Direct Measurement of Targeted Impairments

Nitrogen, Phosphorus and Sediment are the impairments of the waterways that this plan is seeking to control. Yet the impairments of our local watersheds are based on the measurement of E. coli and benthic microinvertebrates. Direct measurement of the targeted goals would seem to be a more accurate method of evaluating the results of the planned implementation practices.

Nutrients from Nonpoint Source Aquaculture

The nutrient content of fish manure is similar to other livestock manures. This is according to research by Naylor, S. Moccia, R. and Durant, G. at the University of Guelph, Canada.

Existing and future expansion of nutrient waste from fresh water aquaculture (sources not assessed by WLA) should be a component of the existing analysis and allocation of nutrients.

Wildlife Nutrient Allocation

The conversion of farm land to wildlife habitat will increase the amount of nutrients generated by wildlife such as deer and geese. This WIP plan needs to show that the increase in nutrients from the wildlife is included in the allocations.

In one watershed (Lower Middle River) in Augusta County, Virginia the amount of direct loading of waste from wildlife exceeds the amount of direct loading from livestock according to Table 5.11 Middle River TMDL study, April 28, 2004.

Omitted Agricultural BMPs

One of the basic principles of soil erosion science states that as the percentage of soil organic matter increases the amount of runoff from rainfall is reduced.¹ Farming practices that increase the percentage of soil organic matter of the soils should be included as an agricultural best management practice.

“Maintaining good soil organic matter levels helps keep topsoil in place. A soil with more organic matter usually has better tilth and less surface crusting. This means that more water is able to infiltrate into the soil instead of running off the field, taking soil with it. When you build up organic matter, you help control erosion by making it easier for rainfall to enter the soil.”
Source: Sustainable Agriculture Research and Education organization (Reducing Soil Erosion, Chapter 13, sare.org)

Many of the BMPs recommend the conversion of pasture land to forest land. USDA research publication titled “Soil Organic Matter Stratification...” by Franzluebbers and Stuedemann compared crop land, hay land, forest land, and pasture land as to which management ecosystem provide the highest organic matter to the soil. The report summary indicated that pasture land contributed the highest soil organic matter as compared to the other ecosystems.

Livestock Exclusion of Streams Cost Benefit Analysis

Local TMDL modeling studies reveal that the direct loading of bacteria from cattle amounts to less than 1.0% of the total bacteria loadings to the stream. The following table is data from the Mossy Creek Watershed, Augusta County, Virginia TMDL Study dated March 2004

Table 4.15 Annual fecal coliform loadings to the stream and the various land use categories in the Mossy Creek watershed.

Source	Fecal coliform loading (x10 ¹² cfu/year)	Percent of total loading
Direct Loading to streams		
Cattle in stream	189	0.4%
Wildlife in stream	12.5	<0.1%
Straight pipes	3.4	<0.1%
Loading to land surfaces		
Cropland	666	1.2%
Pasture 1	48,891	91.3%
Pasture 2	2,622	4.9%
Loafing Lots	852	1.6%
Residential ^a	238	0.4%
Forest	103	0.2%
Total	53,576	

^a Includes loads received from both High and Low Density Residential and Farmstead due to failed septic systems and pets.

Other streams in Augusta County, Virginia have a direct load deposit from cattle of 0.8% for Upper Middle River and 0.5% for Moffett Creek.²

Research by a range livestock management specialist “found that offering water off-site in a trough reduce the number times cattle drank from a nearby stream by 80 percent.”³

This plan needs provide a cost benefit analysis for the recommendation of pasture livestock exclusion of the streams.

Livestock Exclusion of Streams Health Risk Assessment

Exclusion of livestock by creating riparian buffers would increase the wildlife habitat and the potential reservoir of infection of wildlife diseases.

There about 150 diseases that can be transmitted from wild and domestic animals to humans.⁴

Recommendations to convert farm land to wildlife habitat should be subject to a comprehensive assessment of the environmental health risks to human and domestic livestock. The increase of wildlife habitat would increase the potential reservoir of infection of diseases such as Tuberculosis, Brucellosis, Johne's Disease, and Chronic Wasting Disease.

The transmission of tuberculosis from deer to cattle has been a continuing health threat in the state of Michigan for a number of years.⁵

Alternative Livestock Watering Beneficial to Herd Health

Research indicates that providing alternative water source for livestock would result in increased weight gains.²

Prescribe Grazing Economic Viability

By the year 2025 a total of 60% of all pasture land will be subject to prescribed grazing practices. The practice of controlled grazing may be very beneficial to the economic sustainability of farm operations as compared to continuous grazing practices.

However the enforcement of minimum pasture heights during adverse weather conditions would require livestock to be removed from pasture areas. If cattle would need to be removed from a specific grazing area this would be create an economic adversity to the livestock producer. This would in effect regulate the number of days on pasture in a growing season. If additional pasture is not available, livestock would need to be placed in a confined feeding operation or liquidated.

The recommended standards for prescribed grazing need to ensure that livestock producers can maintain economic viability.

Adaptation to Climate Change

This plan needs to assess the effects of the anticipated climate change within this region. The anticipated climate change may be detrimental to agricultural rates of production. Additional farm land acreage may be needed in order to sustain current food production levels. If farm land is converted to forest land, the reversion back to farm land would be costly and cumbersome.

Impairment of Human Environmental Health and Safety

The proposed unrestrained conversion of farm land to forest and wildlife habitat introduces significant impairments to the health and safety of the communities of the Shenandoah Valley.

The deer population in Virginia today is estimated to be nearly twice the number of the deer population at the time settlement of Jamestown.⁶

The WIP plan proposes to increase the wildlife habitat regardless of the environmental health impairments to the population that reside in the region. These health impairments would include threats from wildlife diseases such as Lyme disease, rabies, Tuberculosis, Paratuberculosis (Johne's Disease), and chronic wasting disease. In Virginia the incidence of Lyme disease has increased from 55 in 1993 to 886 in 2008.⁷ The incidence of Lyme disease has increased 1500% in Virginia during a 13 year period.

Deer/vehicle collisions and wildfire threats from wildlife habitat are additional impairments to the public safety of our communities. In 2009 the two fatalities occurred on our public highways in which a deer/vehicle collision was a contributing factor to the accident.

BMPs such as grass buffers and filter strips include recommendations to conduct a prescribed burn on regular intervals. Prescribed burning of indigenous grasses introduces an additional safety impairment of uncontrolled wildfires to our communities.

Agriculture Omitted as Designated Use

Agriculture is not included as an appropriate use of the EPA directed designated uses of the watersheds in Virginia. The approved designated uses include aquatic life, fish consumption, public water supplies, shellfish consumption, swimming and wildlife.⁸

Priority of Uses and Benefits

The EPA administrator has outlined five priorities of this organization. These priorities are 1) Taking Action on Climate Change, 2) Improving Air Quality, 3) Assuring the Safety of Chemicals, 3) Cleaning Up Our Communities, 4) Expanding the Conversation on Environmentalism and Working for Environmental Justice, and 5) Building Strong State and Tribal Partnerships.⁹

This plan needs to be administered by an authority that will include the environmental health, environmental safety and food security of our communities as a priority for the uses of our natural resources.

Endnotes:

¹Buckman, H. and Brady, N., The nature and Properties of Soils, Seventh Edition, 227

²TMDL Study Middle River and Upper South River, April 28, 2004, Table 5.7, Table 5.8

³Veira, D., Meristem Land & Science, Water wisdom boosts cattle performance, Jan. 29, 2003

⁴Tortora, G., et al, Microbiology An Introduction, Fourth Edition

⁵States News Service, Beef Today, Michigan Trace Investigation, Set. 7, 2010

⁶Virginia Department of Game and Inland Fisheries, Deer Fact Sheet

⁷Centers for Disease Control and Prevention

⁸Virginia Department of Environmental Quality

⁹ www.epa.gov, Jackson, L., memorandum